

REMARKS

Claims 1-28 are pending in this application.

Claims 17-28 are withdrawn from consideration.

Claims 1-16 are rejected.

Claims 5, 6 12, 13 and 16 are rejected under 35 U.S.C. 112.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2002/0006689 A1 for Miyasaka ("Miyasaka") in view of U.S. Pat. No. 5,773,088 to Bhat ("Bhat").

Claims 1, 5, 6, 12 and 13 are amended.

New claim 29 is added.

No new matter is added.

Claims 1-16 and 29 remain in the case.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

Election/Restriction

Applicant thanks the Examiner for acknowledgment of election without traverse of the invention of claims 1-16 in Paper No. 4.

Rejections - Under 35 U.S.C. § 112

Claims 5, 6 12, 13 and 16 are rejected under 35 U.S.C. 112. The rejections are respectfully traversed.

In claim 5, the term "predetermined" is deleted.

In claim 6, the term "an oxygen gas" is replaced with "oxygen."

In claim 12, the basis of the percentage is added.

In claim 13, the typographical error has been corrected. Claim 13 now correctly recites the term "resistivity."

With respect to claim 16, the Examiner has stated that the scope of "regular-DC" is unclear. However, one skilled in the art will understand what is meant by "regular-DC" without further explanation because the meaning of regular-DC is known in the art. See, for example, U.S. Pat. No. 6,130,528.

Thus, the rejections under 35 USC 112 are overcome.

Rejections - Under 35 U.S.C. § 103

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable Miyasaka in view of Bhat. The rejections are respectfully traversed.

Claim 1 is amended to recite,

“A method of forming multi-layers for manufacturing a thin film transistor (TFT) using multiple process chambers, comprising forming a first layer on a transparent substrate using a first physical vapor deposition in a first process chamber; transferring the substrate including the first layer without breaking vacuum to a second process chamber; and

sequentially forming a second layer in the second process chamber using a second physical vapor deposition on the first layer without breaking vacuum.” Support for these amendments are found in the specification, for example, at page 5, lines 19-22 of the present application.

The Examiner, in the official action, has stated that “it would have been within the scope of one of ordinary skill in the art to combine the teachings of Miyasaka and Bhat to enable formation of the underlayer and the silicon films without breaking vacuum and to combine the known processes with the process of the combination to enable forming the silicon oxide and silicon films of Miyasaka.”

However, Miyasaka merely discloses a single substrate process chamber and, therefore, does not teach or disclose utilizing multiple process chambers as recited in amended claim 1 of the present invention, i.e., “transferring the substrate including the first layer to a second process chamber without breaking vacuum.” Also, nowhere does Bhat teach or disclose forming a transistor as in the present invention, not to mention water or hydrogen problems of the present invention. One skilled in the art would not look to Bhat to solve the problems of the present invention occurring in the manufacture of transistors.

For these reasons, there is no suggestion or motivation in the prior art represented by such references that they be combined in the manner proposed by the Examiner. Absent such suggestion or motivation there would be no reason why one skilled in the art would consult the particular combination of references suggested by the Examiner. Therefore, one skilled in the art would not be likely to use the Bhat reference, alone or in combination with another reference, in an attempt to solve the water or hydrogen content problems during the manufacture of transistors.

Accordingly, the rejection does not present a *prima facie* case of obviousness. Therefore, claim 1 is allowable and claims 2-16, which depend therefrom and recite features that are neither taught nor disclosed in the cited references, are also allowable. For example, the Examiner has not pointed to specific teachings of any of the prior art regarding the various dependent claim limitations such as the reactive gas mixture comprises oxygen, He and Ar, and...a ratio of Ar in He is between approximately 3-20%. In the present invention, the reduce plasma voltage, afforded by the He sputtering gas, reduces the plasma damage which is typically responsible for the introduction of fixed charges in the insulating layers. See page 5, lines 27-32 of the present application. Applicant respectfully submits that none of the cited references teach or disclose such unobvious aspects of the present invention.

Also, new claim 29, which recites, “no annealing is performed between forming a first layer and forming a second layer,” is also allowable.

CONCLUSION

For the foregoing reasons, reconsideration and allowance of claims 1-16 and 29 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

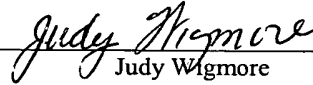
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